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AUTHOR Sanders, Stanley G.
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ABSTRACT

Twenty-nine professional educators at the Universidad Autonoma de Guadalajara and post-graduate students of educational administration participated in a study to identify trends in education based on change in the society and the environment. Researchers used a modification of Delphi Technique, an intuitive method for organizing and sharing the forecasts of experts. The study revealed several trends, including increasing enrollments, a demand for educational institutions to participate in Mexico's modernization, and vast unemployment coupled with drastic inflation. The author projects that conditions related to demographic and economic factors will be ameliorated as Mexicans accept the need for birth control and as newly developed oil resources bring economic growth. He also sees the government's global development plan as beneficial to the educational system of the future. (Author/WD)

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CURRENT DEVELOPMENTS IN EDUCATION IN MEXICO AND TRENDS FOR THE 1980s: A MODIFIED DELPHI PROJECT

by Stanley G. Sanders

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Purpose and Background

This project was carried out as part of a graduate class in educational administration at the Universidad Autonoma de Guadalajara (The Automous University of Guadalajara). The objective of the project was to study current trends in educational administration in Mexico and at this university.

The purpose of educational administration is to plan, coordinate, organize and direct the implementation of educational programs. For this reason, the fundamental part of the course involved the determination and study of trends in education. Educational institutions (schools and universities) must share their goals and purposes to fit the needs and purposes of the society and of individuals in that society who become their students. Educational institutions are influenced by change in the environment and also by their own traditions.

To identify the current trends in educational administration, it was necessary to study and recognize the trends in the complex social environment -- the ethos. Thus the purpose of this project was to study the environment and to identify trends with regard to five major areas:

(1) Trends of populations and enrollments,

(2) Scientific and technological developments,

(3) Economic changes,

(4) Social and cultural changes, and

(5) Political trends and influences, national and international.

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The process involved the study and discovery of present developments and future trends in each of these major areas in Mexico and in the Guadalajara, Jalisco, area. Since we are just entering a new decade, the 1980s were selected as a logical period of time for consideration of future effects. Following the identification of demographic, socio-economic, political changes, their implications for education were considered. Special emphasis was given to effects upon post-secondary education, or education superior. These effects have obvious implications for the administration of educational institutions and their programs.

Finally, as a separate step, trends were studied and predicted for the effects that they would have on the roles and activities of the Universidad Autonoma de Guadalajara. These would determine the extent to which the University would concentrate its activity toward meeting the challenges and needs of the new trends in the 1980s. This paper concentrates on the first phase, involving national and regional trends and does not report the applications to the specific university.

The Delphi Technique

"The Delphi Technique is an intuitive methodology for organizing and sharing 'expert' forecasts about the future. Its original use was to establish a chronology of scientific and technological events and to judge when the events might occur through the speculation of several experts." (Weaver, 1971). Since its early use to predict scientific and technological developments, Delphi has also been used to determine social trends,

including educational developments. There have been a number of significant projects to determine educational futures and priorities in the United States. One of these was an experimental project at the National Conference of Professors of Educational Administration in 1968. This project was conducted by the staff from the Institute for the Future, Middletown, Connecticut, and the Educational Policy Research Center of Syracuse University. Its purpose was to collect conjectures about prospective developments which might have impact on educational administration, probable dates of occurrence, desirability of such developments and possible interventions. (Gordon and Sahr, 1968)

Educational uses of Delphi technique have tended to be used to determine priorities, more often than to make forecasts. It is always important to distinguish between probability (forecasts) and desirability (priorities), but the method can be used to collect opinions of experts or qualified authorities about either or both.

There have been two known uses of the Delphi method to study the future of education in Latin America. Both have involved the use of educational experts to determine priorities for research needs. One concentrates on the needed research in the country of Columbia. (Parra, 1980) The other has enlisted some of the leading authorities in Latin America in an attempt to discover the needs for research at the post-secondary level. (Soria, 1978). The latter extensive project has not been completed. Data is still being analyzed and conclusions drawn. However, it is clear that the participants have returned valuable information. It

may well provide the most authoritative and comprehensive view yet available, or research needs for the development of higher education in Latin America.

The U.A.G. Delphi Project

The present project modifies the original Delphi method in a number of respects. First, the participants may not be fully recognized as experts in the subjects where they were asked to identify trends and forecasts. Second, anonymity of opinions was not maintained. Much of the activity was oral, rather than written. Data was presented in reports to the entire class of participants and differences of opinion were discussed. Third, the distinction between desirability and probability was sometimes blurred, as respondents were asked to identify trends and also their importance as effects upon education.

The participants. This class was composed of twenty-nine professional educators who are also students in a post-graduate program in educational administration at the Universidad Autonoma de Guadalajara (UAG). Twenty-three of the total are faculty members at UAG, and half of the twenty-three act as director, jefe, coordinator, or in other administrative positions. The other six participants included two from Nueva Gallicia Normal Escuela Superior, three who are on leave from University positions in Brasil, and one former professor who is presently a full-time post-graduate student.

Seventeen of the participants hold doctors' degrees including fourteen in dentistry and three in medicine. Nine hold Masters' degrees including four who have completed the Master of Education degree in educational administration at UAG or the University of

Houston. Other participants hold professional degrees in psychology, nursing, health science, social work, law, civil engineering, humanities, and education, pedagogy or educational psychology.

Professional experience of the participants varies from one year to sixteen years with a median of five years. Approximately one fourth have one to three years experience, one fourth have four or five years experience, one fourth have six to ten years, and one fourth have eleven to sixteen years.

Procedures. Each participant chose to act as a member of one of the five study groups. These small groups were responsible for preliminary study and research to identify trends in their respective areas. Each group then developed an instrument consisting of specific items describing trends and developments which might be important to education in the 1980s in Mexico and especially in the Guadalajara, Jalisco area. While participants might not be considered expert in their respective demographic, scientific, economic, social and political subjects, they do consitute a highly educated and well informed group of individuals. They were well qualified to do the research to identify relevant factors. Each group developed an instrument containing its selected items, and the entire class responded by rating each item on a six-point scale, representing the item's probable strength of influence upon educational change in Mexico and the region. Each group was then responsible for reporting the data regarding responses. Medians and interquartile ranges for each item were reported within class sessions. Respondents whose opinions varied from the majority's were invited to state reasons for their opinions or information to

support their opinions. It was made clear that the respondents were to be made aware of majority positions and of reasons for minority viewpoints and then to make a second ranking based upon their individual, rational judgements. In some cases these discussions disclosed need for clarification of wording before the second and final round.

This project actually consisted of two separate activities. After the completion of the program described above, each study group used its data to prepare a second, shorter instrument. This second instrument consisted of items expressing educational trends which might call for changes in the role of the Universidad Autonoma de Guadalajara to meet the needs which had been identified in the national forecasts. Items were selected by:

(1) Considering the data developed by class responses,

(2) Combining similar or related items in order to refer to more general roles and activities; and

(3) Using judgement of the committee members to select those items which might logically be roles of the University.

Again, class members participated in two rounds of judgements. This time they were asked to rate each item with regard to the extent to which the Universidad Autonoma de Guadalajara should develop or change its programs to agree with the new tendencies and to meet new needs of the nation.

Finally, each group prepared a report consisting of a summary of its findings and conclusions regarding trends and developments in Mexico and regarding changing roles of the University Autonoma de Guadalajara. These reports were based upon their interpretations of the data from the Delphi projects.

A list of the steps in the total procedure, the final instruments used, and the data regarding respondents' ratings are all contained in the Appendix. The final reports of the five groups provided the data for the author's own interpretation of the findings which comprise the next section of this paper.

Findings: Predictions of Trends Affecting Education in Mexico in the 1980s.

These predicted trends are reported in five sections, as they were dealt with separately in the Delphi project. However, it became obvious that the factors or influences were interrelated, and could not be considered as separate or exclusive of one another. The five major, interrelated categories are:

1. Trends of poupulations and enrollments;
2. Scientific and technological developments;
3. Economic changes;
4. Social and cultural changes; and
5. Political trends and influences, national and international.

1. Trends of Populations and Enrollments.

Perhaps the single major concern for educators in Mexico is the extremely rapid growth in population and the continuing demands of numbers of children and youth. The population has increased from about 36 million in 1960 to about 48 million in 1970, to about 76 million in 1978. This results from an increase of a little over three and a half per cent per year. It is predicted that this rate of increase will decline to perhaps a little less than 3.5 per cent by 1986, but this still means a total population of 82 or 83 million by 1985 and of 132 million by the year 2000.

This trend results from a continuing high birthrate, which may even decline slightly in the 1980s and a very rapid decline in the ~~birth~~ death rate. It should be noted that, even though the birth rate may remain steady or even decline slightly, the numbers of births will not. This results from the fact that past trends have

created a situation where approximately 70 per cent of the population is under 25 years of age and half is under 18. As these young people marry and have children, there will be many more students beginning primary school and making their way through the grades, even though the average family may be slightly smaller than in the past.

It continues to be a struggle for the nation to stay even in its attempts to find resources to provide education to meet the demands of the increasing numbers.

This demand will continue to increase at every level--primary school to terminal programs in higher education. The greatest increase in numbers of increase will be at the primary school level as the nation continues to make an effort to make this level truly compulsory and universal. However, the greatest pressure may come at higher levels, among the medio superior (higher level secondary) schools and the superior level of colleges and universities. Enrollments in higher education have been increasing at a rate of six to eight per cent per year, and this will probably increase in the 1980s. This comes as a result of very large numbers in these age brackets plus increased expectations and demands for higher education. This will probably result in many schools (preparatory schools, colleges and universities) becoming more restrictive and selective in their admissions. Larger numbers will be admitted, but the scarcity of resources will also result in larger numbers being rejected.

There will also be regional differences. Thinly populated rural areas still lack minimal school facilities in some cases.

There will be continued expansion to make education available at various levels to children and youth in these areas. However, greatest demand for education and increased enrollment will come in the large cities of Mexico City, Guadalajara and Monterrey.

2. Scientific and Technological Developments

Education in Mexico will be strongly influenced by the rapid development of science and technology in the world. This influence will be two-dimensional. Education will be changed by the techniques and facilities which are now available. On the other hand, educational institutions will be called upon to provide personnel and knowledge which will allow the nation to modernize rapidly. Mexico will provide leadership and example to the underdeveloped (or, more accurately, the developing) nations of the world.

It can be expected that Mexico will not emphasize new, original inventions and scientific discovery of its own, but will adapt the primary discoveries of the United States and European countries to its own economy and society. It may also contribute by developing refinements and improvements in the application of science and technology, as Japan has done for the past thirty-five years.

With regard to the effect of technology upon educational institutions, it was predicted that Mexico's traditional approach to education will change rapidly. Education for careers with humanistic approaches will decline and be replaced by new programs or careers emphasizing technical education. There will be a rapid increase in the use of media and other equipment, of

research as a part of education, and of more open curriculum based upon a more scientific view of the teaching-learning process. It was predicted that the universities themselves would claim large share of the nation's utilization of computer technology. It would be used for teaching, evaluation and control as well as for administration of the institutions.

It was also predicted that the educational system would be called upon to provide trained personnel and improved knowledge to enable the nation to adapt science and technology. Larger numbers of trained workers are immediately required as technologists and also as managers and developers at the highest level. Greater numbers are required from the technical secondary schools as well as from the universities and superior technical schools. Leaders in industry and other parts of the society will depend upon the educational institutions for research--research which will emphasize practical application rather than pure science or basic research--and also for knowledge and theory which can be applied in the enterprises of the society.

3. Economic Changes

Mexico has long been besieged by problems of poverty. It has been characterized by unemployment, low production, inefficiency and inflation, especially when compared to its neighbor to the north, the United States. Resources and wealth have not been available to supply the necessities of life to its citizens, let alone to provide education as neededfor progress and improvement. Lack of education and poverty have worked as a cycle, each preventing improvement of the other.

Unemployment statistics comparable to those in the United

States are not available. However, it was estimated in 1976 that only 46 per cent of the population of working age was employed. By this measure, over half of the population might be considered as unemployed. A substantial part of this unemployment can be explained by the fact that women are not expected to be employed outside of the home by a large part of the society. However, the unemployment situation has been bad by any standards and has tended to increase year by year at least until 1960.

Inflation has also been a factor which has tended to consume resources which might have been used to increase and improve education. Inflation rates have varied a great deal, year by year, but a thirty per cent rate has not been uncommon.

Trends have not been all negative. Mexico's economy has shown growth. From 1940 to 1980 the Gross National Product, after allowing for inflation, has increased at a rate of approximately six per cent per year. The estimated increase in GNP for 1980 is eight per cent. However, the nation had so far to go, and the population explosion has demanded so much more in resources, that there is a sense of frustration and failure over lack of improvement.

Industry has become more important in the economy, accounting for about eight per cent of the Gross National Product in 1940 and twenty-five per cent in 1980. At the same time, agriculture's contribution has declined from twenty-three per cent of the total to seventeen per cent. Mexico is generally considered to be an agricultural nation. It is interesting and significant to note that it is not self-sufficient in food but must import more than it exports. Agricultural production is inefficient and low.

Certain areas have shown encouraging growth in their contributions to the Gross National Product in recent years. Production of oil and petroleum increased by an average of 9 per cent per year from 1960 to 1976 and of 14.9 per cent per year from 1977 to 1979. Value of manufactured goods increased by 10.5 per cent from 1960 to 1976 and by 11.4 per cent from 1977 to 1979. Communicaton and transportation industries increased their value by 7.5 per cent per year from 1960 to 1976 and by 8.1 per cent per year from 1977 to 1979. These encouraging trends are expected to continue and improve. Recent discoveries of oil and its increased production in Mexico have been widely publicized. They give promise of a real break through in improvement of the economy.

However, this economic improvement does not give promise of large increases available for education. In fact, educators do not really expect enough increase in support to provide for increased enrollments and inflation, in the next few years. They expect priority to be given to the capital needs more directly related to improvement of the economy.

In spite of the difficulties Mexican schools are expected to provide, first, a truly universal elementary education which has been lacking; second, technical education of rather short duration for large numbers at the middle level to provide trained workers for the economy; and third, more advanced technicians and managers for the expanded enterprise. With the priorities in that order, Mexico has goals of very rapid development of the economy in the

next decade. Many citizens, including respondents to this project are somewhat reserved in their expectations. There is a restrained hope for improvement, but no expectation of miracles. It is obvious that, if Mexico is classified as underdeveloped, education for improved production offers by far the best hope for development. This researcher, and the respondents of the research project, recognize that there are unutilized human resources with brains and ability, waiting for education and the opportunity to make this a developing nation.

In the 1980s it is predicted that the schools and colleges will adapt by giving much more emphasis to those aspects of education which contribute directly to economic modernization and improvement.

It is impossible to consider economic changes without referring to political influences and the role of education in the National Global Plan for Development (PGD) which is discussed in subsection 5, below.

4. Social and Cultural Changes.

Obviously values of the society and the culture have influenced the changes in population and school enrollment in scientific and technological developments and in economic changes and, in turn, the values systems have been changed by them. Interacting, they determine the course of education for the future.

Mexican religious and cultural values account for the continued population explosion and the birth rate which differs so much from that in the United States. This research indicates that high birth rates and the following high enrollments will

continue. At the same time, influences from outside and increased urbanization of youth may be causing some slight change in this regard among the very young who will be entering the marriage market in the near future. Some slight decline may be in the offing, but nothing like the decline of the last fifteen years in the United States.

Much prestige still attaches to university degrees in the traditional humanities and, especially in the social sciences (including law and political science) and in management. The greatest increase in higher education enrollments still come in these social science and management fields. Although need and opportunity are greatest in the areas of technology, competition is still not as keen for positions of this type.

The movement for improved education and employment opportunity for women is proceeding much more slowly in Mexico than in the United States. It is still a "macho" society. However, this too shows a slight change. At present, women constitute only a small part of the student body at higher levels of education. A slight increase in their enrollment may be expected, but in the immediate future there will still be a high level of "drop out" of women from education above the elementary and middle levels.

It appears that inflation has worked especially to the disadvantage of lower classes. If education is restricted because resources cannot keep pace with enrollment demands, it may cause even more division between upper and lower classes. However, education can be expected to contribute to the gradual growth of a middle class within the more urban society.

Urbanization does also pose some unique problems. There is special need to educate rural youth either for improved life in their agricultural setting or for a better chance at success in a new urban setting. Regional needs will strongly influence governmental priorities for support of educational programs.

5. Political Trends and Influences: National and International

Education and government have been closely related in Mexico in the twentieth century and especially since the 1930s. Education is held to be a social right at every level and also is held to be responsible for building the personality and spirit of the nation. In actual practice, the federal government has devoted a major share of its budget to education and its costs have increased astronomically. At the same time the burden caused by rapidly increasing enrollments and by inflation had made it very difficult to keep up with the needs for increase in quantity.

The constitutional structure also gives the national government and its administration strong control over schools and colleges and their programs. The direction and strength of emphasis change substantially every six years with election of a new president. Under the present administration, the government's primary emphasis is the economic development of the nation.

An all-encompassing Global Development Plan (PGD for Plan Global de Desarrollo) sets goals for the administration, ending in 1982 and for the remainder of the twentieth century. These goals show Mexico's economy expanding more rapidly, probably, than any other country in the world. The Plan states a national

philosophy, sets objectives, and designates guidelines for implementation and achievement. It calls for dealing with the recent economic crisis, for consolidating and integrating economic growth, and for controlling inflation. The priorities are listed as (1) developing agriculture and food demand, (2) development of energy for further production, (3) social welfare including education, and (4) improvement of communication and transportation.

Policy and strategy calls for modernization of all sectors of the economy, generation of new jobs, and consolidation of economic recovery. The role of education in this plan is to broaden and improve basic education for children and adults, to relate intermediate and higher education to national development needs, and to train and organize workers for jobs.

At the same time, the rate of inflation must be reduced.

Those priorities indicate that national resources are to be aimed first at capital investment in improved economy. Educational institutions, in the immediate future can expect increases in funds but their proportion of the national budget will be smaller, not larger. At the same time education is given heavy responsibility for the development of human resources, the preparation of people to work and to benefit personally from the economic development as well as to contribute to it.

This calls for schools to make elementary education truly universal, with an emphasis on open educational admissions, and to provide intermediate and higher education to larger numbers. Programs are to emphasize technical and technological education at intermediate levels and in institutions of higher education.

This will call for new technical schools at both levels as well as for increased emphasis and enrollment in those programs in existing schools and universities. Universities and technical schools are also expected to provide much of the knowledge and science needed for organization of the economic development.

Obviously, there is much reservation about the probable success of such an ambitious plan. Some economists and business leaders have described it as nothing more than a statement of good intentions. This cynicism comes especially from conservatives who naturally oppose more government involvement in and control of the economy.

However, it is encouraging to see that the government at least has a clear cut policy as to where it needs to go, and some idea of how to get there. Not all nations have this sense of order and direction at present. There also are some encouraging indications of possible success.

The rampant inflation of the previous administration climaxed with the devaluation and financial crisis of 1976. There is still a great deal of inflation and much concern over the state of the peso, but there has been some stabilization and reserved hope that improvement might be possible.

Of course, the most dramatic factor is the discovery and development of large new deposits of oil. This can provide Mexico with a critical mass of new funds to be applied to development of other aspects of the economy. Early development has resulted in even more production than had been predicted. The government has recognized the danger of this new wealth creating more

inflation. Consequently, deals with foreign nations have called for the trading of oil for capital, equipment and technology rather than consumer goods. This could provide the breakthrough for substantial future improvement in the economy.

If the respondents of this Delphi project represent other educators of the nation, there is a healthy spirit of idealism and readiness to accept the responsibility of helping prepare the population for productive contribution to the national welfare. We predict that schools and colleges will respond to the demand for change and increases in both quantity and quality of education.

The future of politics and government depends a great deal upon the national elections of 1982. President Lopez Portillo's administration ends at that time. Mexico's government operates with a strong presidential influence. Changes are obvious throughout the nation and in all aspects of the society, including education, when the administration changes. However, programs are set in motion and are carried on into a new administration by inertia and by the continuance of leaders and administrators in the government and in the institutions themselves.

CONCLUSIONS

This writer has reached the conclusion that trends should be viewed in two periods for the 1980s. The period up to the middle of the decade, up to about 1985, shows some clear expectations. The latter five years are harder to predict, but there should be more changes by that time.

Population and enrollments will continue to increase very rapidly to 1985 at all levels. After 1985 there should be less rapid increase (not a decrease) in elementary enrollments, as a slightly lower birthrate begins to take effect. In the twenty-first century this trend may become even more effective as there are fewer new parents and these fewer families effect a still lower birthrate.

The present surge of oil production, technology, and industrialization may not produce immediate improvement in the day-to-day economy. There will be continued shortage of resources until 1985. Then there could be rapid development as the new technology and organization takes effect. Agricultural technological change may be most dramatic. There is much room for improved and increased production. Much depends upon the ability to control or at least slow down inflation.

The universities will increase their attention to science and technology. They can provide the brains to make a substantial contribution to the development of the nation. Intermediate and secondary schools will also be involved in a very important way in the preparation of competent and productive new workers.

Socially and culturally, Mexico will retain its own personality. It will not become a copy of the United States or Europe. There will be continued increase in the respect for and the valuing of education among an increasing middle class. The increasing role of women in education and the economy will come slowly, as compared to the United States, but will change more rapidly after 1985.

Politically, it is difficult to predict what will happen after the election of 1982. Hopefully, we predict a period of political stability in Mexico. There is a cautious improvement in faith in the government and national leadership following a period of serious disillusionment prior to 1976. The government can provide needed planning on a national and regional basis and coordination between levels of education.

Internationally, Mexico will be involved more influentially with other nations as a result of its improved economic position. It can provide valuable leadership to Latin America and other developing nations. Its schools and universities will be called upon to provide the leaders for this national and international role of government.

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